Me and My Thunderpig

By Lt. Jake Staub

Ah, the mighty Prowler. Certainly not the sexiest jet in the fleet, but, as with anything else, it has its perks. No other aircraft is as ugly, as loud, or as much of a trial-and-tribulation to operate behind the boat. "Character" is what I prefer to call it; the Prowler has character in spades, especially when you're a nugget pilot, in an air wing operating in the tropical environment off Guam, in a plane that isn't automatic.

The mission was a perfect start to another day on a WestPac cruise. It didn't take long to become a wringing-wet mess during man-up, start and taxi. Fortunately, none of us had any idea of the events that would transpire once airborne. Our minds were occupied solely by a desire to climb into the clean, cool sky and escape the oppressive heat.

Off the cat, we went in search of our little piece of heaven in the overhead-tanker stack. Our first order of business was a package check. Then we climbed to 24,000 feet to join a division of Hornets petrified of the "matter attracting matter" principle, especially when one aircraft was unaided by air-to-air radar.

While at military-rated thrust (MRT), I noticed the left engine was running 90 degrees cooler than the right engine—definitely odd but no cause for alarm. I'd seen 50-degree splits that didn't raise eyebrows with the maintainers. After pulling the throttles off the stops, the temperatures matched up. How about that join on the division? Nothing like the bone-chilling handicap of losing sight in close, while shooting an approach through the trelliswork of a Grumman Ironworks canopy.

Good thing we joined up, because I was ready to give an electron-induced, lead-pipe beating to a division of Eagles from Guam. We had visions of Prowler gun kills dancing

Me and My Thunderpig

through our heads, and all looked well, except the weather. Clouds wreaked havoc on the idea of a high war, so it was down to 14,000 feet to work a low war. The Eagles quickly gave up on that idea, and we detached with a Marine-Hornet section, lamenting the missed opportunity to bat about the Air Force bunny.

The game was on. Moments after detaching, I heard something I hadn't heard since the day I blew up the motor in my '67 Chevy on a high-speed run from school. I just had shifted into fifth in the low triple digits. Our trusty Pratt and Whitney J-52 motor was having all kinds of trouble with the "suck, squeeze, bang and blow" theory after its big thump. We weren't sure what had happened, but we agreed the airframe had plenty of vibrations. We were reasonably sure the origin of the noise was the left engine, so, despite engine gauges that displayed normal readings, I pulled back the engine to idle. Sure enough, the vibes calmed down and no longer were noticeable to the guys in the back (one of whom was the CO). The engine gauges read normal. However, I, the 150-hour nugget, still felt significant vibrations in the throttle quadrant and floorboards. Meanwhile, lead gave us an in-flight inspection to assess external damage. Fortunately, there was none.

Like a "wood duck on a June bug," we made our way back to mom. Along the way, we plugged our nearest divert into the system. The divert happened to be in the same direction as the ship. I began to sell my idea of shutting down the left engine, while the CO started to coordinate with our rep on the ship. Having seen what engine vibrations look like at the bottom of an oil pan, I had a hunch our once finely balanced turbine had serious problems. Also in the back of my mind was the knowledge that J-52s have a recent history of shedding turbine wheels in an effort to snuff out the remaining motor.

After voicing my reservations about keeping the engine running, I still felt vibrations in the airframe from the engine. Everyone agreed I should shut down the ill engine. Immediately after securing the engine, the entire crew noticed the plane felt much smoother. The left engine normally wound down and windmilled, while continuing to power the left side hydraulics. Now, if the right engine, a recently installed unknown quantity, kept running, we'd be OK—so I thought.

We arrived overhead the ship with fuel to burn and with the CO talking to the ship—leaving no doubt we wanted to land as soon as possible. I couldn't blame the man. Flying in the back, on a single questionable engine, with a nugget up front at the controls, and while dodging WestPac-afternoon buildups was a formidable position to be in less than a week before his change of command.

Our situation seemed increasingly ominous as the ship started an emergency pull forward. While I meandered in a starboard delta to avoid large rain clouds, we decided on a fuel weight of 5.0—that sounded fine to me. The EP says, "Burn down or dump to a minimum," which left us 1.8 over a bingo to Saipan, about 50 miles away.

Tower cleared us to Charlie on a straight-in whenever we were ready, and on came the dumps. I built a mental picture of how I would set up for the approach from where we were; my vision immediately was negated by the ship turning. It was raining hard, and the CO voiced his displeasure of driving single-engine into the rain. We started dumping down to 5.0, but, somehow, the magic number changed to 6.0. The TACAN didn't provide useful information, and bull's-eye wasn't working. But we did have

the ram-air turbine out—fantabulous.

Somewhere around eight miles, we flew out of the rain shower, and I configured the airplane for landing, sans speed brakes. I began to investigate the flight characteristics in a dirty configuration. Paddles suggested we evaluate the rate of climb with a single engine at MRT to determine rudder input. We were bearing down on the ship, and all I knew was that centerline was somewhere out there. I investigated how the airplane flew at various power settings and began trimming the rudder. I decided to trim half the pressure and to manually input the other half. I was concerned too much trim might make us swerve, or even worse, blow a tire or two on touchdown.

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Working toward centerline was an exercise in the art of WAG. The ship wasn't making much of a wake, and the centerline paint had been rubbed long ago to a black skid mark. Naturally, I aimed for the island—to get close enough to make a play. As a result, the first pass didn't go well. Flying along at cherubs eight, I was late to catch glide slope, because of the centerline issue, and drove it in high, all the way to a hook-skip four. I wasn't going to fall behind in the burble. MRT thumbing the boards that already were in, staring at the balance ball to counteract yaw, with a gentle reminder from the boss to raise the gear, we went into the hot sun at a blazing 500 feet per minute.

The second pass went much better. Centerline still was difficult to find, but at least I knew what to expect, and I worked us closer, using constant angle-of-bank turns. Starting at 600 feet (800 feet would have taken too long to reach and didn't work well the first time anyway) moved the glide-slope-capture point to a mile-and-a-half, give or take. That change made the transition easier, and we rattled off a hook-skip two, three, and four. We couldn't do anything but claw our way up and try it again. Take three was even better to my eye, but we met with the same result. I never would have believed I'd skip seven wires in one day, but it was a day of many firsts.

Trick-or-treat on No. 3 left us on a bingo profile to Saipan, but not before we saw our gas station whip past our right side. Apparently, the ship wasn't done with us yet, and we tried to gas up at 1,500 feet, dodging rain showers and clouds en route Saipan. Not that we couldn't plug, something wasn't acting right in the buddy store—go figure. We didn't have time for buddy-store troubleshooting at a sub-bingo fuel state, so we quickly left behind the refueling option.

By the time we were 15 miles from Saipan, we were at 6,000 feet, and I could see the island through a patch of clouds off the nose. Our weather brief on the boat had forecast easterly

Me and My Thunderpig

winds, so I set up on a right base for runway 7. When we finally got our clearance to land, it really was for runway 7; at least one part of the flight went our way. After a quick sweep of descent checks and a run-through of the landing checks, we needed to shed 6,000 feet in five miles. PAPI managed to get us on a good glide slope for an uneventful landing.

Fortunately, we didn't shut down in front of a civil-air-terminal jetway where we first parked. Tower personnel thought we had wanted a quick gas-and-go. What they didn't know we confirmed during the post flight. Something seriously had gone wrong with the left engine because there was significant visible damage to the last turbine stage. The origin of our in-flight vibrations was plain to see. Shutting down the engine was the best thing we could have done. Chalk one up for the nuggets.

Postflight-maintenance analysis revealed both turbine disks sustained serious FOD damage, including missing blades. There was evidence of blades scraping the inside of the engine case, and a stator vane completely had failed; that should raise a few eyebrows during the engineering investigation.

Our in-flight emergency went rather smoothly and provided excellent real-world training, with no cost of life or limb. As a crew, we had controlled the situation through sound decisions, based on the information within our checklists. Operating around the ship proved to be a bit of a challenge, as another subset of people was introduced into the recovery process. It would have helped us if we had laid out our entire plan before dumping fuel for the first pass. Once the fuel was gone, we had placed ourselves in a time-critical situation.

In retrospect, dumping down to 5.0 was a good thing. Boltering in humid, 90-degree-plus temperatures, single-engine, left us climbing at 700 feet per minute after we got the gear up. That climb rate may sound significant, but it doesn't seem like it when you're in the plane, clawing your way away from the watery depths.

On the matter of the repeated bolters, I was briefed in the air and debriefed after landing; I may have been dropping the nose and allowing the hook to skip. One technique suggested to me at the ground debrief was to place the stick in my lap on touchdown to set the hook. When the plane was brought back after the engine change, the technique discussed at the debrief was tried and resulted in a hook-skip two, three, four with a stab stall. Given the single-engine-climb rate, I count myself fortunate we didn't try the same technique. Had I tried it, the Navy would have four fewer flight suits in its inventory. I could have bent the stick back in my lap on touchdown, and it wouldn't have mattered. Unbeknownst to the aircrew or maintainers, the snubber-pressure gauge was inaccurate and indicated 1,000 psi over the actual pressure, which led to the hook-skip problem.

Always have a divert in mind, if possible. We had Saipan plugged into the system, which allowed us to keep an eye on our safety valve if everything fell through, which it did. To the forecaster's credit, the briefed winds were correct, and the weather turned out to be close to forecast, which helped to make the field landing uneventful.

The true measure of success was walking away from this incident wiser and without a scratch. Did the airplane get stuck in Saipan with a bad engine? Yes. Was it a problem for the maintainers to get the plane back to the ship? Yes. But, as far as the crew is concerned, diverting was better than pulling the ejection handle any day of the week.

Lt. Staub flies with VAQ-138.